

**ABSTRACT OF THE DISCLOSURE**

A motion video signal encoder maximizes image quality without exceeding transmission bandwidth available to carry the encoded motion video signal by comparing encoded frames of the motion video signal to a desired size of frame. If the size of encoded frames differ from the desired size, encoding is adjusted to produce encoded frames closer in size to the desired size. In addition, a cumulative bandwidth error records an accumulated amount of available bandwidth. The cumulative bandwidth error is adjusted as time elapses to add to the available bandwidth and as each frame is encoded to thereby consume bandwidth. As the cumulative bandwidth error grows in magnitude above or below zero, encoding is adjusted as needed to either improve image quality to more completely consume available bandwidth or to reduce image quality to thereby consume less bandwidth and to thereby cause the cumulative bandwidth error to move toward zero. Rapid changes in the amount of change or motion in the motion video signal are detected by comparing the amount of change between two consecutive frames and filtering the amount of change with previously measured amounts of change. Encoding is pre-compensated according to the filtered measurement of rapid change.